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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,665

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Rudolf Linde

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EXAMINER

WONG, EDNA

ART UNIT

PAPER NUMBER

1795

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07/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/536,665	Applicant(s) LINDE ET AL.	
	Examiner EDNA WONG	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-15 is/are pending in the application.
- 4a) Of the above claim(s) 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

This is in response to the Amendment dated May 21, 2008. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Response to Arguments

Election/Restrictions

This application contains claim **16** drawn to an invention nonelected with traverse in the reply filed on September 20, 2007. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 112

Claims **10-15** have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10

line 14, the words "labyrinth-like" are indefinite.

The rejection under 35 U.S.C. 112, second paragraph, is as applied in the Office Action dated February 28, 2008 and incorporated herein. The rejection has been

maintained for the following reasons:

Applicants state that using the labyrinth definition, one skilled in the art would be able to discern the meaning of the term “labyrinth-like,” as used in claim 10.

In response, it is well settled that unpatented claims are given the broadest, most reasonable interpretation and that limitations are not read into the claims without a proper claim basis therefor. *In re Prater* 415 F. 2d 1393, 162 USPQ 541 (CCPA 1969); *In re Zeltz* 893 F. 2d 319, 13 USPQ 1320.

It is not clear how the structures other than a labyrinth structure has to resemble the specified labyrinth-like structure to satisfy the limitations of the claim (MPEP § 2173.05(b)(F)).

Claim Rejections - 35 USC § 103

Claims **10-15** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Gardam** (“The Production of Machinable Cr Deposits”, *J. of the Electrodepositors’ Technical Soc.* (1945), Vol. 20, pp. 69-74) in combination with **DE 44 32 512** (‘512), **EP 1,205,582** (‘582), **Horsthemke** (US Patent No. 6,837,981 B2) and **Wilmeth et al.** (US Patent No. 5,196,108).

The rejection of claims 10-15 under 35 U.S.C. 103(a) as being unpatentable over Gardam in combination with DE 44 32 512 (‘512), EP 1,205,582 (‘582), Horsthemke and Wilmeth et al. is as applied in the Office Action dated February 28, 2008 and incorporated herein. The rejection has been maintained for the following reasons:

Applicants state that the references do not teach or suggest a method of producing a structured hard chrome layer, wherein the “hard chrome layer comprises at least one of a cup-shaped structure, a labyrinth-like structure, or a column-shaped structure.” Rather, in contrast to Examiner’s assertion in the February 28, 2008 Office Action (page 4), nodules that are accentuated do not represent a cup-shaped, labyrinth-like, or column-shaped structure, but rather a spherical structure.

In response, the Applicant has a different reason for, or advantage resulting from doing what the prior art relied upon has suggested, it is noted that it is well settled that this is not demonstrative of nonobviousness. *In re Kronig* 190 USPQ 425, 428 (CCPA 1976); *In re Linter* 173 USPQ 560 (CCPA 1972); the prior art motivation or advantage may be different than that of Applicants while still supporting a conclusion of obviousness. *In re Wiseman* 201 USPQ 658 (CCPA 1979); *Ex parte Obiaya* 227 USPQ 58 (Bd. of App. 1985) and MPEP § 2144.

Applicants state that Gardam is directed towards forming soft chromium layers for cutting tools using simple H₂SO₄ electrolytes, whereas the other cited references are directed towards the formation of hard chromium layers using very different electrolytes. The teachings of Gardam (formation of chromium layers with decreased hardness) are thus contrary and teach away from to the focus of these references, namely, the formation of chromium layers with increased hardness.

In response, Gardam is missing two electrolyte components as presently

claimed, i.e., an aliphatic sulphonic acid and at least one compound forming a dense cathode film.

DE '512, Horsthemke and Wilmeth teach these missing electrolyte components, and the Examiner modified the electrolyte disclosed by Gardam with these missing electrolyte components using DE '512, Horsthemke and Wilmeth.

DE '512 teaches a $\text{CrO}_3\text{-H}_2\text{SO}_4$ electrolyte comprising methane sulfonic acid (page 2, Example 1).

Horsthemke teaches a $\text{CrO}_3\text{-H}_2\text{SO}_4$ electrolyte comprising methane sulfonic acid and molybdic acid (ammonium molybdate) [cols. 5-6, Example A]. Horsthemke teaches that the addition of short-chain aliphatic sulfonic acid, its salts and/or derivatives proved to be especially advantageous and also makes it possible to operate with lower chromic acid concentrations in the electrolyte in comparison with the concentration of the isopolyanion-forming metal (col. 4, lines 50-57). The use of molybdenum, which can be added to the electrolyte in the form of molybdic acid or molybdic salts, proved to be particularly advantageous (col. 2, lines 30-35).

Wilmeth teaches a $\text{CrO}_3\text{-H}_2\text{SO}_4$ electrolyte comprising methane sulfonic acid and ammonium molybdate (col. 4, lines 25-55). The addition of the molybdenum anion materially changes the fundamental character of the base electrolyte bath, providing a workpiece with improved wear resistance obtainable at high current efficiency and at a useful current density (col. 4, lines 51-55).

These references have their $\text{CrO}_3\text{-H}_2\text{SO}_4$ electrolytes in common. One having

ordinary skill in the art in looking to develop a $\text{CrO}_3\text{-H}_2\text{SO}_4$ electrolyte for electrodepositing chromium would look at the additives in the prior art for their functioning in an electroplating bath.

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Furthermore, how does adding methane sulfonic acid and ammonium molybdate to the electrolyte disclosed by Gardam produce a difference in kind? The claimed and prior art products are produced by identical or substantially identical processes, a *prima facie* case of wither anticipation or obviousness has been established (MPEP § 2112.01(I)).

Applicants state that because the claimed electrolyte differs from the electrolyte of Gardam, it is not possible to simply transfer a current yield from Gardam to another electrolyte. Correspondingly, the current yield of the methods using electrolytes that contain an aliphatic sulfonic acid and a molybdate is much higher than 12%.

In response, Gardam teaches a cathode current efficiency of 12% or less (pages 72-73).

Horsthemke teaches that “one ***preferably*** operates at a cathode efficiency of at least 15%” (col. 5, lines 53-54).

Applicants have not shown that adding an aliphatic sulphonic acid and at least one compound forming a dense cathode film into the electrolyte disclosed by Gardam creates a failure in the method of Gardam.

The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 US 904 (1991); and MPEP § 2144.

Applicants state that in addition, Gardam adds further ionic compounds, e.g., Fe(III), Cr(III), or Al(III). These compounds are reduced from oxidation level III to oxidation level II at the cathode and are oxidized from oxidation level II to oxidation level III at the anode. This also reduces the current yield. Therefore, it would not have been obvious for one skilled in the art to provide a method that combines the feature of a low current yield from Gardam with the electrolytes from the other cited references.

In response, the Examiner modified the electrolyte disclosed by Gardam with the missing electrolyte components using DE ‘512, Horsthemke and Wilmeth. The Examiner is not modifying the electrolyte of DE ‘512, Horsthemke and Wilmeth with the

cathode current efficiency of Gardam.

Gardam teaches that a part of the chromic acid **may be** chemically reduced (page 72, lines 1-3); iron **may be added** to the chromic acid solution (page 72, lines 10-12); and aluminum **is also** efficacious (page 73, lines 3-4).

Gardam teaches that trivalent chromium, iron and aluminum are optional. They are not required to be in the electrolyte.

Applicants state that one skilled in the art, upon reading Horsthemke, Horsthemke II, and Wilmeth would be led in a direction directly divergent from the feature of claim 10 of providing a cathodic current yield of 12% or less.

In response,

(a) Gardam teaches a cathode current efficiency of 12% or less (pages 72-73);

(b) Horsthemke teaches that “one **preferably** operates at a cathode efficiency of at least 15%” (col. 5, lines 53-54);

(c) The combination of Gardam, Horsthemke and Wilmeth teaches a similar method as presently claimed. Similar processes can reasonably be expected to yield similar results;

(d) Gardam, DE ‘512, Horsthemke and Wilmeth have their $\text{CrO}_3\text{-H}_2\text{SO}_4$ electrolytes in common. One having ordinary skill in the art in looking to develop a $\text{CrO}_3\text{-H}_2\text{SO}_4$ electrolyte for electrodepositing chromium would look at the additives in the prior

art for their functioning in an electroplating bath.

(e) The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 US 904 (1991); and MPEP § 2144; and

(f) How does adding methane sulfonic acid and ammonium molybdate to the electrolyte disclosed by Gardam produce a difference in kind, when the claimed and prior art products are produced by identical or substantially identical processes, a *prima facie* case of wither anticipation or obviousness has been established (MPEP § 2112.01(I)).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDNA WONG whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Edna Wong/
Primary Examiner
Art Unit 1795

EW
July 27, 2008